

## ABSTRACT

The invention relates to a medical X-ray device 5 arrangement for producing three-dimensional information of an object 4 in a medical X-ray imaging. The medical X-ray device 5 arrangement comprises:

- 5        - an X-ray source 2 for X-radiating the object from at least two different directions
- a detector 6 for detecting the X-radiation to form projection data of the object 4
- means 15 for modelling the object 4 mathematically utilizing the 10 projection data
  - to solve the imaging geometry and/or the motion of the object, where the solving concerns either some or all parts of the imaging geometry and/or the motion of the object.
  - and the medical X-ray device 5 arrangement comprises means 15 15 for utilizing said projection data and said mathematical modelling of the object in Bayesian inversion based on Bayes' formula

$$p(x, \theta | m) = \frac{p_{pr}(\theta)p_{pr}(x)p(m | x, \theta)}{p(m)}$$

- 20        to produce three-dimensional information of the object.

(Fig. 7)

## ABSTRACT

A medical X-ray device 5 arrangement for producing three-dimensional information of an object 4 in a medical X-ray imaging comprises an X-ray source 2 for X-radiating the object from at least two different directions; a detector 6 for detecting the X-radiation to form projection data of the object 4; a computational device 15 for modelling the object 4 mathematically utilizing the projection data to solve the imaging geometry and/or the motion of the object, where the solving concerns either some or all parts of the imaging geometry and/or the motion of the object. The computational device 15 utilizes said projection data and said mathematical modelling of the object in Bayesian inversion based on Bayes' formula

$$p(x, \theta | m) = \frac{p_{pr}(\theta) p_{pr}(x) p(m | x, \theta)}{p(m)}$$

to produce three-dimensional information of the object.